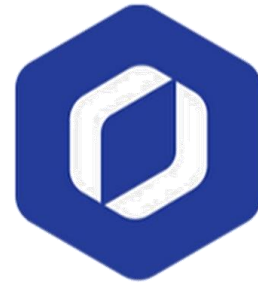


PRECISE
AUTOMATION



DOBOT





DRV70L



DRV90L



DRS40L Series



DRS50L Series



DRS60L Series



DRS70L Series



Delta SCARA Robot DRS40L



- **Dosah ramene: 400 mm**
- **Maximální nosnost 3 Kg**
- **Standardní čas cyklu 0.42 (při zatížení 1 Kg)**
- **Opakovatelnost ± 0.01**
- **Hmotnost 16 Kg**



Delta SCARA Robot DRS60L



- **Dosah ramene: 600 mm**
- **Maximální nosnost 6 Kg**
- **Standardní čas cyklu 0.39 sec (při zatížení 1 Kg)**
- **Opakovatelnost ± 0.015 mm**
- **Hmotnost 20 Kg**



Delta Vertical Articulated Robot DRV70L/DRV90L

- **Dosah ramene 700 a 900 mm**
- **Maximální nosnost 7 Kg**
- **Standardní čas cyklu 0.31 sec.
(při zatížení 1 Kg)**
- **Opakovatelnost
 ± 0.02 a ± 0.03 mm**



ASDA-MS

Řídící jednotka



**Human Machine Interface
HMI**



**Handheld Teach Pendant
DTS**



PAD



PC



**Machine Vision System
DMV**



**Robot Controller
DCS**



+ Extensions: up to 6 axes of control



**Servo Drive ASDA-A2
Servo Motor ECMA**



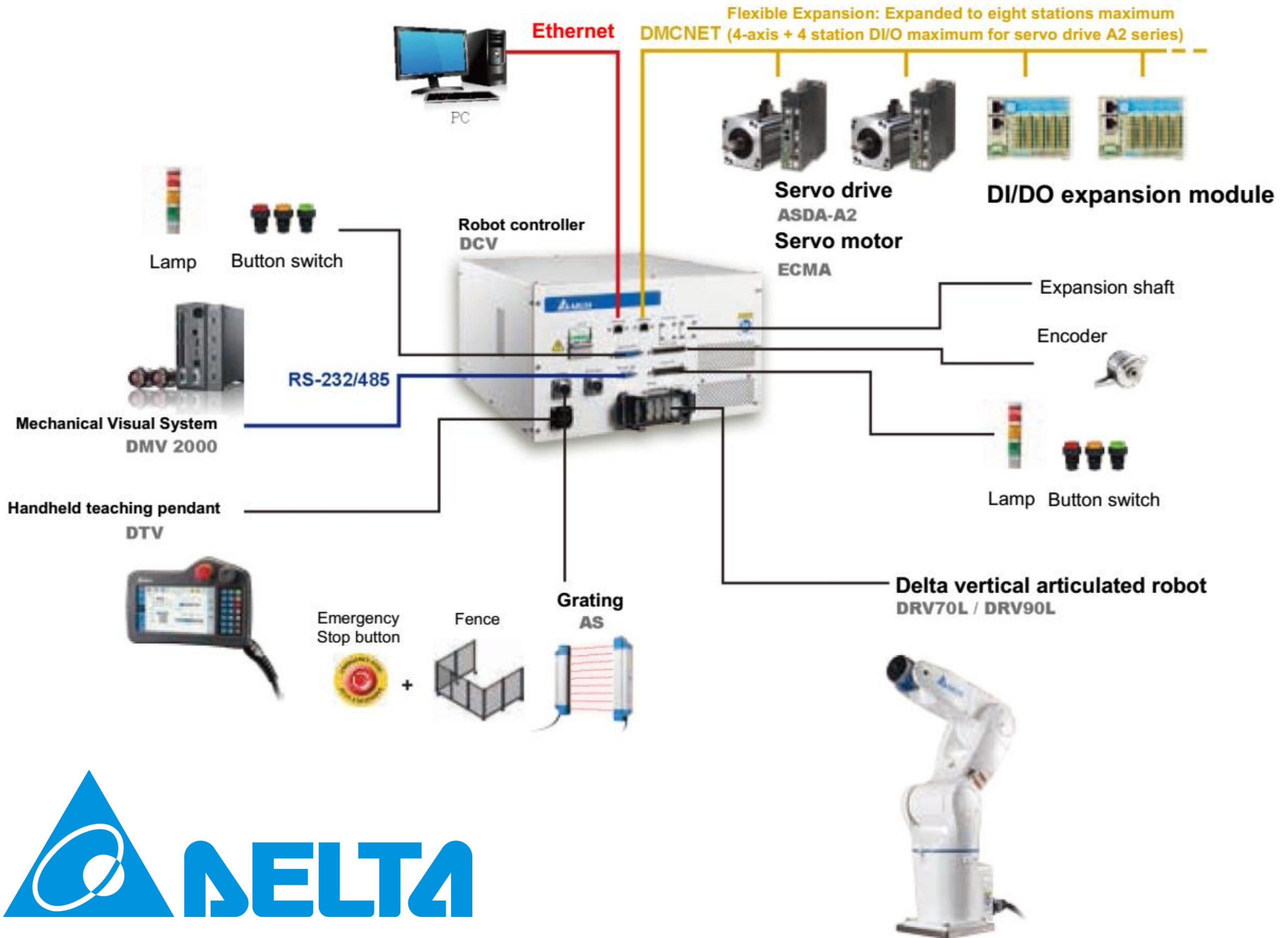
DRS40L

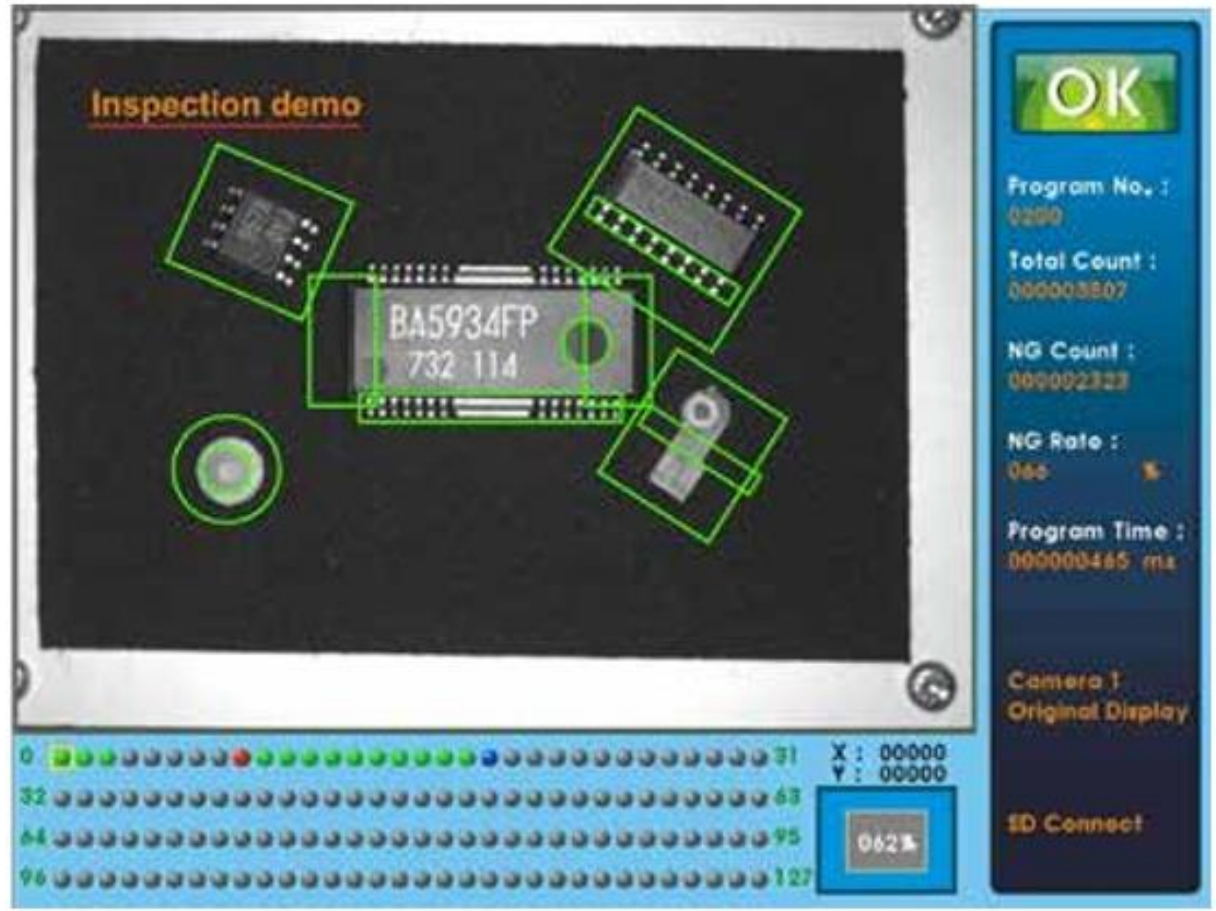
SCARA Robot



DRS60L







MACHINE VISION SYSTEM



Controller and Optional Accessories

Controller	Keypad	Camera	Cable
			
DMV1000-80GXC	DMV1000-KEY	DMV-CDA80GS (Grey scale, standard) DMV-CDA30GS (Grey scale, standard)	DMV-CA45 (4.5 m standard)

Lighting

			
DMV-PS12C1 DMV-PS12C2 DMV-CA30P	DMV-BL60R	DMV-CX40W	DMV-DR6736R DMV-DR6736W DMV-DR6736D

Specific Lenses for Industrial Cameras

					
DMV-LN08M (focal length: 8 mm, Mega-pixel)	DMV-LN12M (focal length: 12 mm, Mega-pixel)	DMV-LN16M (focal length: 16 mm, Mega-pixel)	DMV-LN25M (focal length: 25 mm, Mega-pixel)	DMV-LN35M (focal length: 35 mm, Mega-pixel)	DMV-LN50M (focal length: 50 mm, Mega-pixel)



TEACH PENDANT

7" display

Integrované stop-tlačítko

Kabel 5m a 10m





Programování robotů DROE software



DROE ver.0.41.0.0

Project : Project1

ON T1 Reset

Local Global User Frame Tool Frame Work Space Check All

	Check	Name	X (mm)	Y (mm)	Z (mm)	RZ (degree)	Hand	ToolID	UserID
1	<input type="checkbox"/>	GL_1	0.000	0.000	0.000	0.000	0	0	0
2	<input type="checkbox"/>	GL_2	0.000	0.000	0.000	0.000	0	0	0
3	<input type="checkbox"/>	GL_3	0.000	0.000	0.000	0.000	0	0	0
4	<input type="checkbox"/>	GL_4	0.000	0.000	0.000	0.000	0	0	0
5	<input type="checkbox"/>	GL_5	0.000	0.000	0.000	0.000	0	0	0
6	<input type="checkbox"/>	GL_6	1.000	-2.000	0.000	0.000	0	0	0
7	<input type="checkbox"/>	GL_7	0.000	0.000	0.000	0.000	0	0	0
8	<input checked="" type="checkbox"/>	GL_8	10.000	0.000	0.000	0.000	0	0	0
9	<input type="checkbox"/>	GL_9	0.000	0.000	0.000	0.000	0	0	0
10	<input type="checkbox"/>	GL_10	0.000	0.000	0.000	0.000	0	0	0
11	<input type="checkbox"/>	GL_11	0.000	0.000	0.000	0.000	0	0	0
12	<input type="checkbox"/>	GL_12	0.000	0.000	0.000	0.000	0	0	0
13	<input type="checkbox"/>	GL_13	0.000	0.000	0.000	0.000	0	0	0
14	<input type="checkbox"/>	GL_14	0.000	0.000	0.000	0.000	0	0	0
15	<input type="checkbox"/>	GL_15	0.000	0.000	0.000	0.000	0	0	0

Command

Please choose one line

File: Global

Name: GL_8

Motion: MovP

Clear Teach GO

Alarm Output Project Point Work Space Jog Fur

Mode World UF: 0 TF: 0

Speed Low Distance Short

X 400.000

Y 0.000

Z 0.000 RZ 0.000

mm

+

X

Y

-

DOWN Z UP

- RZ +



Programování robotů DROE software

The screenshot displays the DROE ver.0.40.4.0 software interface. The main window is titled "Project1" and contains a code editor with the following code:

```
1  --Start To Write RL
2  -----
3  RobotServoOn ()
4
5  SpdJ ( 100.0 ) -- Max:100%
6  AccJ ( 100.0 ) -- Max:100%
7  DecJ ( 100.0 ) -- Max:100%
8
9  aa=2
10 local x=6
11
12 MovJ ( 1, 90 )
13 MovJ ( 1, -90 )
14
```

The left sidebar shows a navigation menu with the "RL" button highlighted in red. The right sidebar shows a list of functions under the "Motion" tab:

Function	Description	More
RobotServoOn	Robot Servo On	...
RobotServoOff	Robot Servo Off	...
MovP	Point to point motion in absolute coordinates	...
MovPR	Point to point motion in relative coordinates	...
MovL	Line motion in absolute coordinates	...
MovLR	Line motion in relative coordinates	...
MovJ	Rotation of the motor to the target position	...
Lift	Move along the opposite orientation of the tool to a certain height or frontage orientation to a certain location.	...
MArc	Arc motion in absolute coordinates	...
Mcircle	Circle motion in absolute coordinates	...
SetUF	Set user frame	...

The status bar at the bottom indicates: Status: Closed || Execute Line: 12 || BreakPoint Line: XXX



Programování robotů DROE software

DROE ver.0.40.4.0

Project :

ON T1 Reset

Alarm Output Project Point Work Space Jog Function

Main Connect Servo Execution Project Points RL Jog Home Arm I/O User I/O Info System

User IO System IO

User

DI :

1	2	3	4	5	6	7	8
9	10	11	12	13	14	15	16
17	18	19	20	21	22	23	24

DO :

1	2	3	4	5	6	7	8
9	10	11	12				

Mode Joint UF: 0 TF: 0

Speed Low Distance Short

J1 PUU 0

J2 PUU 0

J3 PUU 0

J4 PUU 0

KOLABORATIVNÍ ROBOTY



KOLABORATIVNÍ ROBOTY

KARTÉZSKÝ



- 2 kg užitečné zatížení
 - 3 kg bez gripperu
- 1.5 m/s max rychlost
- 229 mm Z trasa
- 350 mm Y trasa
- 500 nebo 1085 mm X trasa
- $\pm 100 \mu\text{m}$ přesnost opakování

KOLABORATIVNÍ ROBOTY

KARTÉZSKÝ

Precise Servo Gripper

0-23 N síla stisku

57 mm trasa

Spring-loaded

pružina zabráňující

vypadávání dílů



PrecisePlace XYZ

bez gripperu

500mm X

300mm Y

225mm Z

1000mm X

300mm Y

225mm Z



Theta Axis Removed with End-of-Arm Facilities for
Customer Tooling (ex. Pneumatic, Vacuum, Dispense)

KOLABORATIVNÍ ROBOTY

KARTÉZSKÝ

Digitální I/O

- Na koncovém uzávěru
- 4 vstupy
4 výstupy
- Dalších 12 vstupů a 8 výstupů s GIO na zadním krytu

Interní vzduchový rozvod od koncového uzávěru k pneumatickému gripperu.



SCARA ROBOT PreciseFlex 3400

Kompaktní stolní robot

První kolaborativní SCARA robot
na trhu

Schopný pracovat v úzkém
a omezeném prostoru



SCARA ROBOT PreciseFlex 3400



- 3 kg užitečné zatížení
- 1 m/s max. rychlost
- Dosah 731 mm
- „Easy to teach“
jednoduché učení
- Snadno přemístitelný

SCARA ROBOT PreciseFlex 3400

Linear Rail – 1 m, 1,5 m a 2 m délky



ŠESTI-OSÝ ROBOT PAVP6 a PAVS



ŠESTI-OSÝ ROBOT PAVP6



Denso VP-6242 robot s vestavěnou
řídící jednotkou PreciseAutomation

- 2 kg užitečné zatížení
- 470 mm radius dosahu
- 800 mm/s max. rychlost

ŠESTI-OŠÝ ROBOT PAVS serie

Denso VS-G robot (6556 a 6577)
s externím řídicím boxem
PreciseAutomation

- 4-5 kg užitečné zatížení
- 650 mm radius PAVS 650
- 650 mm radius PAVS 850
- 750 mm/s max. rychlost



KOLABORATIVNÍ ROBOTY

- Programování
 - Guidance Motion
 - Guidance Development Enviroment
 - TCP/IP Command Server



PROGRAMOVÁNÍ ROBOTA

Project Manager

PC (0) : C:\Program Files\Precise Autom

- CIDLO_TEST
- FM_Input_Triggered
- FM_Recover_PAVP6
- Pallet_demo
- PAVP6_Restart
- Pf400_exercise_rev118_recover
- PnP_Input_Triggered
- PnP_Simple
- PnP_Step_Recovery
- PP120S_recover_demo
- Reference_Frame_Ex
- Simple_Jar_Demo
- SPEL_01
- SPEL_LIS_001
- SPEL01
- SPEL02
- SPEL02_a
- SPEL02_b
 - GModule.gpo
 - Main.gpl
- SPEL02_priprava_v_kancelari
- Tcp_cmd_server_pa
- TEST_CT_1
- TEST_CT_1_cpy
- TEST_PV_20180326
- TEST_PV20180328
- TEST_PV20180328_estop
- TEST_PV20180328_estop_AR
- TEST_PV20180328_estop_cpy1
- TEST_PV20180328_estop_cpy2
- TEST002
- TEST003
- TEST004

GModule.gpo Main.gpl

Motion Objects [view source](#)

- Motion Location
 - KUZEL_PRIBLIZENI
 - KUZEL_PRIBLIZENI_B
 - KUZEL_UCHOPENI
 - KUZEL_UMISTENI
 - Location_A
 - Location_B
 - Safe_Location
 - VALEC_PRIBLIZENI_A
 - VALEC_PRIBLIZENI_B
 - VALEC_UCHOPENI
 - VALEC_UMISTENI
- Motion Profile
 - Gripper_Motion
 - Quick_Motion
 - Slow_Motion
- Motion Frame
- GPL Variable

MotionLocation: KUZEL_PRIBLIZENI

Identity	
Name	KUZEL_PRIBLIZENI
Text	
Motion	
Config	1
RefFrame	
Type	Cartesian
Robot Angles	
Angle01	0
Angle02	0
Angle03	0
Angle04	0
Angle05	0
Angle06	0
Angle07	0
Angle08	0
Angle09	0
Angle10	0
Angle11	0
Angle12	0
Robot Cartesian Coordinates	
Pitch	90
Roll	180
X	93.16493
Y	395.0899
Yaw	-1.927325
Z	108.066
Robot Clearance	
ZClearance	1E+32
ZWorld	False

Name
Name of the selected variable.

Add Delete Record

Jog To ... Set Memory

PROGRAMOVÁNÍ ROBOTY

The image shows a screenshot of a robot programming IDE. The main window displays a code editor with the following code:

```
1 'Created: 3/26/2018 6:46:24 PM
2 Module GPL
3
4 Dim SIGNAL_A As Integer = 20001
5 Dim SIGNAL_B As Integer = 20002
6 Dim SIGNAL_C As Integer = 20003
7
8 Public Sub MAIN
9     Dim opakovani As Integer
10    Dim signal_state As Boolean
11    Dim err As New Exception
12    Dim Caught As Boolean = True
13    Dim state As String = "01"
14    Dim ukon As Integer
15
16    zacatek:
17
18    Controller.PowerEnabled = 1
19    Robot.Attached = 1
20    Robot.Home ()
21
22    Move.Loc(Safe_Location, Slow_Motion)
23
24    opakovani = 1
25    Signal.DIO(800015) = False
26
27    While (Not Signal.DIO(810002))
28        Controller.SleepTick(1)
29    End While
30    Signal.DIO(800015) = True
31
32    Do
33        Try
```

The right-hand side of the IDE features a 'GPL Object Browser' window. It lists various objects and methods available in the GPL environment, including:

- Controller
- Exception
- File
- Function
- IPEndPoint
- Latch
- Location
- Math
- Modbus
- Move
 - Approach(location_1,profile_1)
 - Arc(location_1,location_2,profile_1)
 - Circle(location_1,location_2,profile_1)
 - Delay(seconds)
 - Extra(axis_position)
 - ForceOverlap(mode,criterion)
 - Loc(location_1,profile_1)
 - OneAxis(axis,position,rel,profile)
 - Rel(location,profile)
 - SetJogCommand(jog_mode,jog_axis)
 - SetRealTimeMod(changes_array)
 - SetSpeeds(speed_array,profile_1)
 - SetTorques(torques_array)
 - StartJogMode()
 - StartRealTimeMod(coordinates,char)
 - StartSpeedDAC(scale_factor,dac_o)
 - StartTorqueCntrl(motor_mask,adc_m)
 - StartVelocityCntrl(mode,adc_mask)
 - StopSpecialModes
 - Trigger(mode,trigger_pt,channel)
 - WaitForEOM

The 'Approach(location_1,profile_1)' method is currently selected. Below the list, a detailed description is provided:

Approach(location_1,profile_1)
Member Of: Move [Click for help.](#)
Description: Moves to the clearance position for a specified Location.



EUROIMMUN AG
Publikováno 29. 7. 2016

<https://youtu.be/SmOySrNQAXk>



TTP Labtech
Publikováno 19. 9. 2016

<https://youtu.be/fsG3-Y-xTwE>



Biosero
Publikováno 15. 3. 2018

<https://youtu.be/ACaPU2dUUbA>



CyBiosWorld
Publikováno 1. 3. 2016

<https://youtu.be/luTriGj0Irl>



HighRes Biosolutions



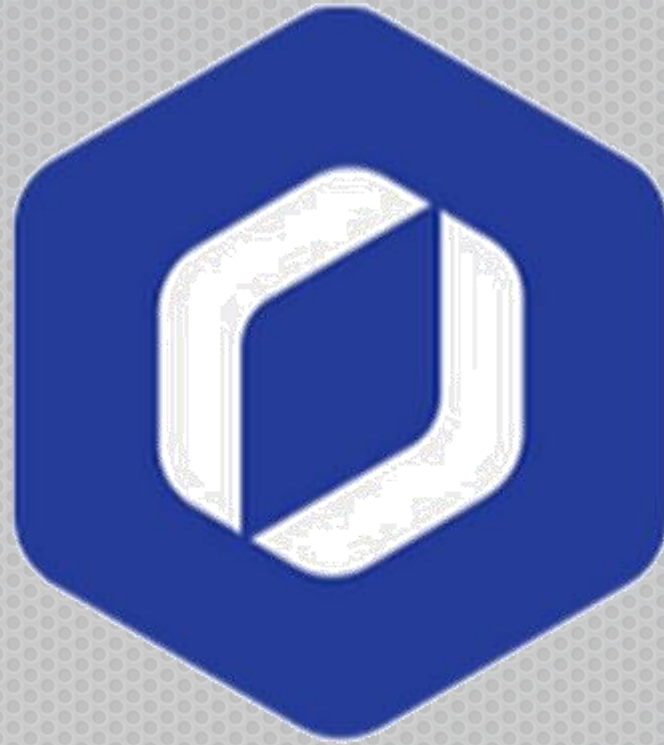
<https://vimeo.com/highresbio/colabflex>



<https://news.sky.com/story/uk-lab-makes-dna-for-synthetic-biology-10231939>



<http://money.cnn.com/video/technology/2015/04/17/bayer-technology-automation.cnnmoney/index.html>



DOBOT



DOBOT
Share Creating Pleasure

DOBOT-M1



Opakovatelnost
0.02mm



Rychlost
200°/s



Nosnost
1.5kg



Dosah
400mm





DOBOT
Share Creating Pleasure

DOBOT-M1

M1Studio-V1.0.4 >> C:/Program Files/M1Studio/config/pbstore/Playback_Test_PV_01.playback

Settings Tools Help



Playback Script

Infinite Loop
 DynRatio %
Loop
1% 200%

Index	Name	Type	Content
0		OUTPUT	OUT18=0V
1		MOVJ	To(154.0141, 298.2269, 96.0000, 22.6511), Vel/Jerk(20%, 50%), ArmOrientation(Right)
2		MOVJ	To(154.0141, 298.2269, 69.0000, 22.6511), Vel/Jerk(20%, 50%), ArmOrientation(Right)
3		OUTPUT	OUT17=0V
4		MOVJ	To(154.0141, 298.2269, 96.0000, 22.6511), Vel/Jerk(20%, 50%), ArmOrientation(Right)
5		MOVJ	To(78.1350, -386.5726, 96.0000, -161.1687), Vel/Jerk(50%, 50%), ArmOrientation(Left)
6		MOVJ	To(78.1350, -386.5726, 69.0000, -161.1687), Vel/Jerk(20%, 50%), ArmOrientation(Left)
7		OUTPUT	OUT17=24V
8		MOVJ	To(78.1350, -386.5726, 96.0000, -161.1687), Vel/Jerk(20%, 50%), ArmOrientation(Left)
9		WAIT	Pause 1.00 S
10		MOVJ	To(78.1350, -386.5726, 69.0000, -161.1687), Vel/Jerk(20%, 50%), ArmOrientation(Left)
11		OUTPUT	OUT17=0V
12		MOVJ	To(78.1350, -386.5726, 96.0000, -161.1687), Vel/Jerk(20%, 50%), ArmOrientation(Left)
13		MOVJ	To(154.0141, 298.2269, 96.0000, 22.6511), Vel/Jerk(50%, 50%), ArmOrientation(Right)
14		MOVJ	To(154.0141, 298.2269, 69.0000, 22.6511), Vel/Jerk(20%, 50%), ArmOrientation(Right)
15		OUTPUT	OUT17=24V
16		MOVJ	To(154.0141, 298.2269, 96.0000, 22.6511), Vel/Jerk(20%, 50%), ArmOrientation(Right)
17		WAIT	Pause 1.00 S

Add At Last
 Insert Before Selected Row
 OverWrite Selected Row

Enable Hand Hold Teach

Add Motion Command

PTP

Vel %

Jerk %

Add Wait Command

s

Add I/O Command

Output Trigger

Operation Panel

X Joint1
 Y Joint2
 Z Joint3
 R Joint4

Joint



Vel %

Acc %

Motor: Power:



DOBOT
Share Creating Pleasure

DOBOT-M1

M1Studio-V1.0.4 >> C:/Program Files/M1Studio/config/bystore/Example.blockly

Settings Tools Help



Playback Script **Blockly**

New Open Save Save As Start Stop

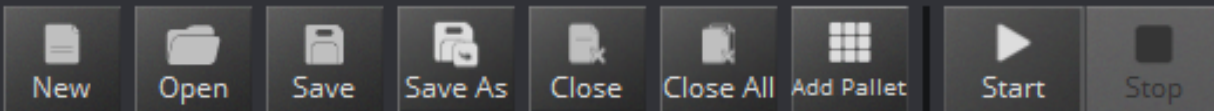
- Logic
- Loops
- Math
- Text
- Lists
- Colour
- Variables
- Functions
- ▼ DobotAPI**
 - Basic
 - Config
 - Motion
 - I/O

```
Set Coordinate Speed VelocityRatio 20 JerkRatio 50
Set Jump Params JumpHeight 20 ZLimit 200
repeat while true
do
  Set Arm Orientation Left
  Jump To X 223 Y 276 Z 60
  Set Arm Orientation Right
  Jump To X 223 Y 276 Z 60
  Set Arm Orientation Right
  Go to X 258 Y 177 Z 120
```




DOBOT
Share Creating Pleasure

DOBOT-M1



Search: TEST_PV_PETvicka_barvy1

- + Other
- QueueCmd
 - ? dType.GetQueuedCmdCurrentIndex(api)
 - ? dType.SetQueuedCmdStartExec(api, cmd)
 - ? dType.SetQueuedCmdStopExec(api, cmd)
 - ? dType.SetQueuedCmdForceStopExec(api, cmd)
 - ? dType.SetQueuedCmdClear(api)
- Pose
 - ? dType.GetPose(api)
- Alarms
 - ? dType.GetAlarmsState(api, maxLevel)
 - ? dType.ClearAllAlarmsState(api)
- ArmOrientation
 - ? dType.SetArmOrientation(api, arm, orientation)
 - ? dType.GetArmOrientation(api)
- JOG
 - ? dType.SetJOGCommonParams(api, isjoint, cmd)
 - ? dType.GetJOGCommonParams(api)
 - ? dType.SetJOGCmd(api, isjoint, cmd)
- PTP
 - ? dType.SetPTPJumpParams(api, jumpMode, cirPoint)
 - ? dType.GetPTPJumpParams(api)
 - ? dType.SetPTPCommonParams(api, ptpMode, x, y, z, r)
 - ? dType.GetPTPCommonParams(api)
 - ? dType.SetPTPCmd(api, ptpMode, x, y, z, r)
- ARC
 - ? dType.SetARCCmd(api, ptpMode, x, y, z, r)

```
25 while not (dType.GetIODI(api, 19)[0]) == 0: # Cekani na stisk tlacitka
26     pass
27     if (dType.GetIODI(api, 20)[0]) == 1:
28         break
29     dType.SetArmOrientation(api, 1, 1)
30     dType.SetPTPCmd(api, 0, 79.55, 189, 27, 331, 1)
31     close_grip()
32     dType.SetArmOrientation(api, 1, 1)
33     dType.SetPTPCmd(api, 0, 162, 314, 89, 331, 1)
34     print(dType.GetIODI(api, 17)[0])
35     print(dType.GetIODI(api, 18)[0])
36     dType.SetWAITCmdEx(api, 1000, 1)
37     while (dType.GetIODI(api, 18)[0]) == 1 and (dType.GetIODI(api, 17)[0]) == 1:
38         pass
39     print(dType.GetIODI(api, 17)[0])
40     print(dType.GetIODI(api, 18)[0])
41     if (dType.GetIODI(api, 18)[0]) == 1 and (dType.GetIODI(api, 17)[0]) == 0:
42         dType.SetArmOrientation(api, 0, 1)
43         dType.SetPTPCmd(api, 0, x1, y, z, r, 1)
44         open_grip()
45         x1=x1-35
46     elif (dType.GetIODI(api, 18)[0]) == 0 and (dType.GetIODI(api, 17)[0]) == 1:
47         dType.SetArmOrientation(api, 0, 1)
48         dType.SetPTPCmd(api, 0, x2, y2, z, r, 1)
49         open_grip()
50         x2=x2-35
51     elif (dType.GetIODI(api, 18)[0]) == 0 and (dType.GetIODI(api, 17)[0]) == 0:
52         dType.SetArmOrientation(api, 0, 1)
53         dType.SetPTPCmd(api, 0, x3, y3, z, r, 1)
54         open_grip()
55         x3=x3-35
```

api : The object of Dobot Library.

cirPoint : List of transition position

- cirPoint[0] : Value of x-axis
- cirPoint[1] : Value of y-axis
- cirPoint[2] : Value of z-axis
- cirPoint[3] : Value of r-axis

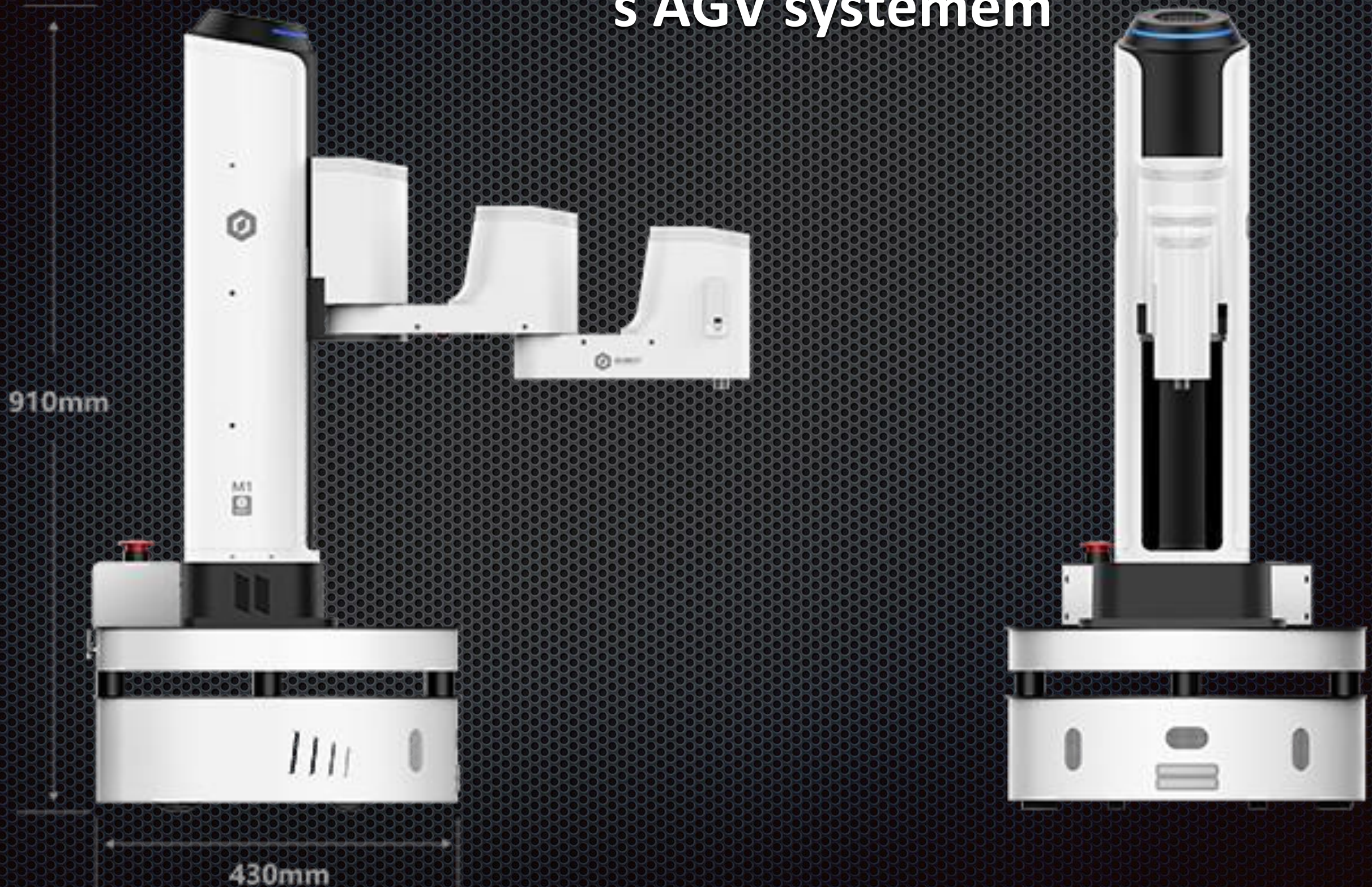
toPoint : List of target position

- toPoint[0] : Value of x-axis



DOBOT
Share Creating Pleasure

DOBOT Připravuje roboty s AGV systémem





DOBOT
Share Creating Pleasure

DOBOT



reddot award 2018
winner



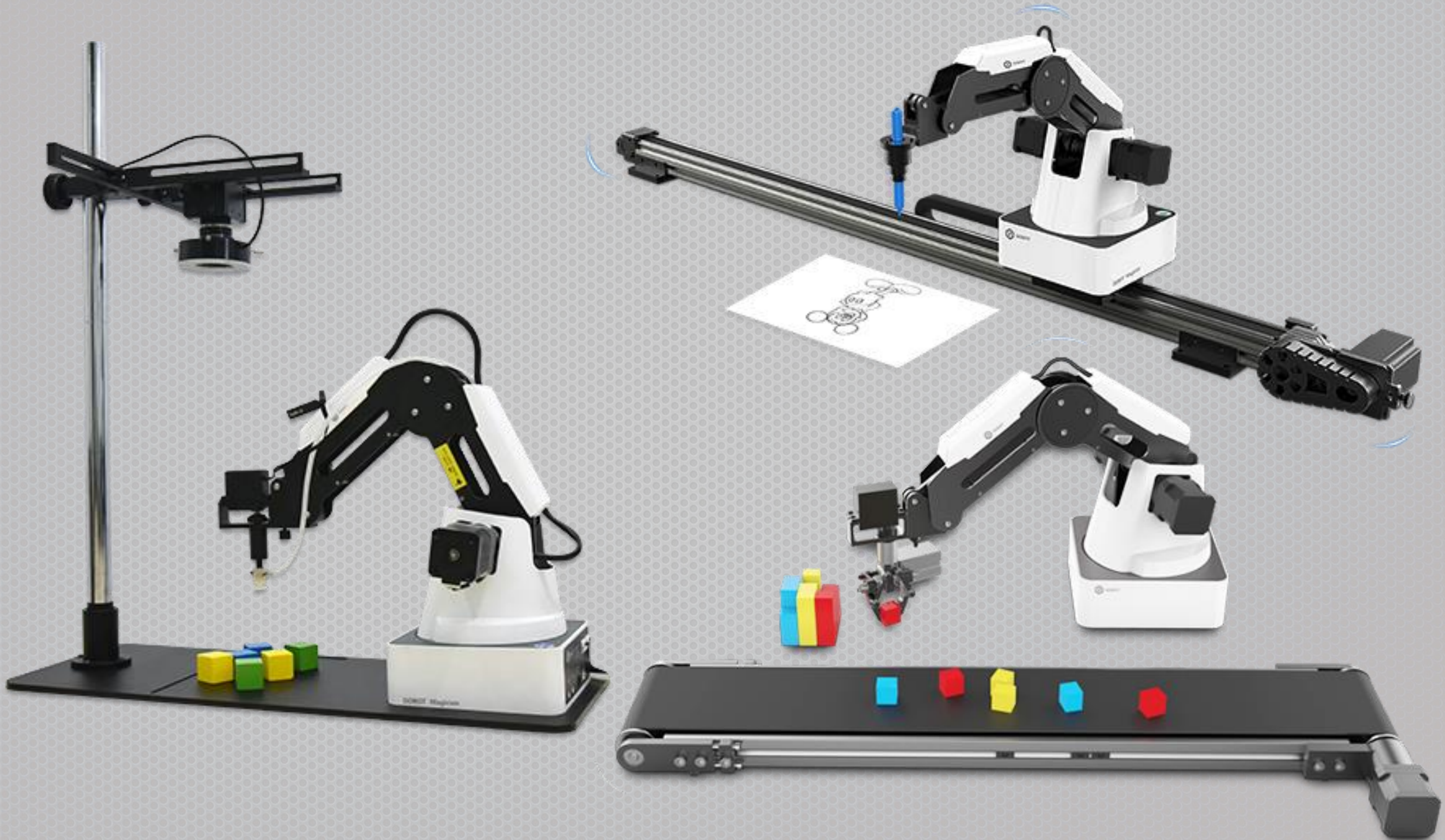
DOBOT Magician
All-in-One Robot for Education





DOBOT
Share Creating Pleasure

DOBOT



ÚCHOPNÉ HLAVICE PRO ROBOTY

Pneumatické

Paralelní pohyb



2 čelisti, 3 čelisti, 4 čelisti

Úhlový pohyb



Standardní, 100°, samosvorné

Vakuové

Přísavky



Samostatné, s držákem, bezkontaktní

S vestavěným
ejektorem



Servo



2 prsty, 3 prsty

Magnetické

